

**Army Regulation 420-70**

**Facilities Engineering**

# **Buildings and Structures**

**Headquarters  
Department of the Army  
Washington, DC  
10 October 1997**

**UNCLASSIFIED**

# ***SUMMARY of CHANGE***

AR 420-70  
Buildings and Structures

This revision--

- o Updates minimal maintenance and security measures for inactive facilities to include compliance with the Shelter for the Homeless Program (para 2-2).
- o Adds policy for inspection and testing of vertical lift devices (para 2-7).
- o Reflects current policy on provisions for access for persons with disabilities (para 2-8).
- o Updates policy and guidance for the preservation of historic properties and archaeological sites (para 2-9).
- o Clarifies policy for painting of buildings and structures (para 2-10).
- o Provides policy for identification and mitigation of seismic risks (para 2-12).
- o Adds policy for packing and crating (para 2-14).
- o Updates policy on lead hazard management (chap 3).
- o Updates policy on management and control of asbestos-containing materials (chap 3).
- o Simplifies policy on roofing systems management (chap 4).
- o Incorporates policy for preventive maintenance and self-help (chap 5).
- o Incorporates policy for custodial services (chap 6).
- o Updates technical and administrative references (app A).
- o Deletes key management control procedures.

Effective 11 November 1997

Facilities Engineering

Buildings and Structures



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Secretary of the Army

**History.** This printing publishes a revision of this regulation. Because the publication has been extensively revised, the changed portions have not been highlighted.

**Summary.** This regulation has been revised throughout to consolidate several buildings and structures regulations. It prescribes policies and guidance for Directorates of Public Works/Directorates of Engineering and Housing (DPW/DEH), hereafter referred to as DPW. It clarifies and updates policy on real property maintenance and repair activities for buildings and structures, adds new material,

reorganizes the material within this regulation, and simplifies guidance.

**Applicability.** This regulation applies to the Active Army and the U.S. Army Reserve. Specifically, it applies to installations and activities in active use by the regular Army, in an inactive condition for future use by the regular Army, in an excess category (see AR 405-90 for further guidance) and in full-time or intermittent use by the U.S. Army Reserve or Reserve Officers' Training Corps. It also applies to Government owner, contractor-operated industrial plants and activities. This regulation does not apply to the Army National Guard and installations and activities, or parts thereof, which have been licensed to the District of Columbia or to any state, territory, or commonwealth of the United States for use by the National Guard; single project-owned or leased civil works facilities of the U.S. Army Corps of Engineers; national cemeteries; and facilities occupied by Army activities as tenants when support is provided by another government agency.

**Proponent and exception authority.** The proponent of this regulation is the Assistant Chief of Staff for Installation Management (ACSIM). The proponent has the authority to approve exceptions to this regulation that are consistent with controlling law and regulation. Proponents may delegate this

approval authority, in writing, to a division chief under their supervision within the proponent agency in the grade of colonel or the civilian equivalent.

**Army management control process.** This regulation does not contain management control provisions.

**Supplementation.** Supplementation of this regulation and establishment of command and local forms are prohibited without prior approval from Headquarters, Department of the Army (HQDA), Assistant Chief of Staff for Installation Management (ACSIM), 600 Pentagon, Washington, DC 20310-0600.

**Suggested improvements.** Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to HQDA, Office of the Assistant Chief of Staff for Installation Management (DAIM-PDF-B), 600 Army Pentagon, WASH DC 20310-0600.

**Distribution.** Distribution of this publication is made in accordance with initial distribution number 093488, intended for command levels C, D, and E for Active Army and U.S. Army Reserve.

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\*This regulation supersedes AR 420-70, dated 29 May 1992; AR 420-22, dated 6 July 1976; and AR 420-81, dated 4 February 1974.

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## Chapter 1 Introduction

### Section I General

#### 1-1. Purpose

This regulation contains the policies and guidance for use by the DPW in performing real property maintenance and repair of buildings and structures.

#### 1-2. References

Required and related publications and prescribed forms are listed in appendix A.

#### 1-3. Explanation of abbreviations and terms

Abbreviations and special terms used in this regulation are explained in the glossary.

### Section II Responsibilities

#### 1-4. The Assistant Secretary of the Army (Installations, Logistics and Environment)

The Assistant Secretary of the Army (Installations, Logistics and Environment) (ASA(IL&E)) provides overall policy direction for Army buildings and structures.

#### 1-5. The Assistant Chief of Staff for Installation Management

The Assistant Chief of Staff for Installation Management (ACSIM) establishes Army policies for facilities engineering pertaining to real property maintenance and repair of buildings and structures.

#### 1-6. The Commander, U.S. Army Corps of Engineers

The Commander, U.S. Army Corps of Engineers (USACE)—

a. Establishes and maintains, through the U.S. Army Corps of Engineers Architectural and Engineering Instructions (AEI) Design Criteria, design standards and space allowances.

b. Provides technical guidance to major Army commands (MACOMs) and installations on real property maintenance and repair of buildings and structures through the U.S. Army Center for Public Works (USACPW), Buildings and Structures Division.

#### 1-7. Commanders of major Army commands and other activities

Commanders of MACOMs and other activities will provide direction for performance of real property maintenance and repair of buildings and structures per this regulation.

#### 1-8. Commanders of installations

Commanders of installations—

a. Implement Army policy and MACOM directives.

b. Notify the MACOM of major changes considered necessary to improve real property maintenance and repair of buildings and structures.

## Chapter 2 Real Property Maintenance Activity Policy

### 2-1. General

a. Real property maintenance activity (RPMA) policy is to maintain and repair buildings and structures to satisfy Army functional requirements.

b. RPMA policies apply regardless of the source of funds or approval authority. Implementation of policies will be based on economic considerations and sound engineering practice. Refer to

technical manuals in the TM 5-600 and TM 5-800 series for additional guidance.

### 2-2. Buildings and structures

Buildings and structures, to include active and inactive facilities, are classified as permanent, semi-permanent, or temporary according to type of construction, maintainability, and design life. Facilities are identified for retention, replacement, or disposal as determined by a space utilization survey (AR 405-70).

#### a. Active facilities.

(1) Facilities scheduled for retention will be maintained in a manner commensurate with the planned use of the facilities, the health and safety of occupants, and the Installation Design Guide (IDG).

(2) Relocated real property facilities will be sited according to the approved installation real property master plan.

(3) Policies pertaining to relocatable buildings, acquired as personal property, are outlined in AR 420-18. Refer to AR 415-15 for policy on relocatable buildings authorized as real property.

(4) Policies pertaining to the maintenance and repair of leased facilities are prescribed in AR 210-50 and AR 405-10.

b. *Inactive facilities.* Minimal maintenance and security measures will be undertaken to ensure against safety hazards, fire hazards, and vandalism until disposition is made.

(1) Facilities retained for specific mobilization requirements will be maintained per appropriate industrial mobilization planning guidance.

(2) Guidance on the relocation or disposal of buildings and structures incident to military construction (MILCON) is contained in AR 415-15.

(3) Guidance on the disposal of facilities which are excess or deteriorated beyond economical repair is contained in AR 405-90 and AR 200-2.

(4) Facilities not required for mobilization that are damaged by fire, explosion, or phenomena of nature will not be repaired except to perform the minimum work required to eliminate safety hazards and to forestall further damage. Disposal must be considered as an alternative to minimal repairs.

(5) Buildings and structures retained in an inactive status will be made available for use by others per AR 405-80. All costs beyond that required to maintain an inactive facility will be the responsibility of the user.

(6) Prior to disposal of Army facilities and other real property, installations must comply with legal and regulatory requirements providing for assistance to the homeless (the Stewart B. McKinney Homeless Assistance Act section 11411, title 42, United States Code (42 USC 11411); the Base Closure Community Redevelopment and Homeless Assistance Act of 1994, P.L. 103-421 (10 USC 2687 note); 41 CFR 101-47.902).

### 2-3. Project definition and work classification

Project definition and work classification policy and examples of maintenance, repair, and minor construction are contained in AR 420-10 and DA Pamphlet 420-11. Policy for maintenance, repair, and incidental improvements, including approval authority levels for Army family housing, is contained in AR 210-13 and AR 210-50.

### 2-4. Unaccompanied personnel housing

Maintenance, repair, and minor construction of unaccompanied personnel housing (UPH) is the responsibility of the DPW. Refer to AR 210-50 for additional policy.

### 2-5. Family housing construction and design

Construction standards and design criteria for new construction, line item improvements, minor construction, and maintenance and repair projects are prescribed in the AEI Manual, MIL-HDBK-1035, AR 210-50, and in technical manuals in the TM 5-600 and TM 5-800 series.

### 2-6. Morale, welfare, and recreational facilities

a. Policy for construction, maintenance, and repair of morale,

welfare, and recreational (MWR) facilities is contained in AR 415-19 and AR 215-1.

b. The DPW will provide technical approval for projects funded by nonappropriated fund instrumentalities.

c. Maintenance, repair, installation, and relocation of outdoor recreation equipment, including markings and scoreboards, are MWR responsibilities.

## **2-7. Building appurtenances**

Policy for maintenance, repair, and installation of building appurtenances follows:

### *a. Acoustical treatment.*

(1) Acoustical treatment will be used to control sound at the source (TM 5-805-4 and TM 5-805-9).

(2) Additional information for reduction of sound transmission and control of noise in family housing is contained in National Bureau of Standards Monograph 77 and Department of Housing and Urban Development (HUD) publication 953-CPD. Both are available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

b. *Awnings and canopies.* Awnings and canopies are authorized to protect entrances, interior surfaces, and personnel from effects of weather.

c. *Fencing.* Fencing shall be limited to the minimum consistent with functional, safety, and security requirements.

(1) Fencing will be approved in accordance with the IDG.

(2) Requirements for security fencing will be based on guidance provided in the AR 190 series, TM 5-853, and the Corps of Engineers Security Engineering Manual (SEM).

### *d. Floor and floor coverings.*

(1) Instructions for installation, maintenance, and repair for floors are contained in TM 5-618, TM 5-620, and in the AEI Manual.

(2) Conductive flooring, when required, will meet the conductivity requirements of National Fire Protection Association (NFPA) 99.

(3) Raised flooring is classified as equipment-in-place (EIP). Projects involving raised flooring will receive technical approval through the DPW.

(4) Commanders may approve installation of carpeting when economically justified, or authorized by a common table of allowance.

(5) Guidance for new construction, authorized areas, and wear classification is contained in the AEI Manual.

(6) Refer to the AEI Manual and the NFPA 101 for guidance on use of carpet as an interior finish.

### *(7) Classification.*

(a) Installation of carpet over a floor in serviceable condition is classified as construction.

(b) Replacement of worn or deteriorated floor covering installed as real property, is classified as repair, including addition of underlayment, when necessary.

### *e. Locks and locking devices.*

(1) Installation and maintenance of locks and locking devices which are an integral part of a facility are DPW responsibilities. (See MIL-HDBK-1013/7 for additional guidance.)

(2) Requirements for locks and locking devices for confinement and correctional facilities are described in AR 190-47.

f. *Machinery and equipment.* Machinery and equipment for manufacturing, processing, and other similar activities are classified as installed building equipment (IBE) or EIP and are the responsibility of the using activity. General purpose utility systems, to support such machinery and equipment, are installed building equipment and are the responsibility of the DPW.

g. *Partitions and modular furniture.* Factory finished partitions and modular office furniture are EIP and are the responsibility of the user. Installation, removal, and required utility work will be coordinated with the DPW.

### *h. Signs.*

(1) Installation and maintenance of permanent identification and directional signs and markings for functional and statutory requirements are DPW responsibilities. Installation of signs will be managed according to TM 5-807-10 and the IDG.

(2) Signs for installation entrances, boundaries, and identification of off-post facilities will contain the designation "U.S. ARMY."

(3) Signs for restricted areas will be according to the requirements of AR 190-13.

(4) Signs located off the installation, or adjacent to public highways, will be consistent with local standards.

### *i. Vertical lift devices.*

(1) The DPW is responsible for the maintenance, repair, inspection, and testing of vertical lift devices, such as cranes, hoists, and elevators, which are classified as IBE.

(2) Trained personnel will inspect, test, and maintain vertical lift devices according to recommendations of manufacturers.

## **2-8. Access for persons with disabilities**

Army facilities, including historical facilities, will be accessible to individuals with disabilities in accordance with the Uniform Federal Accessibility Standards (UFAS), as required by Architectural Barriers Act (Public Law 90-480), title 42 United States Code, sections 4151 - 4157, (42 USC 4151-4157). The U.S. Architectural & Transportation Barriers Compliance Board established the Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities in August 1994. These guidelines, referred to as the ADAAG, will be met whenever they provide equal or greater accessibility than UFAS.

a. *Military Exclusions.* Section 4.1.4 (2) of UFAS indicates that certain facilities intended for use or occupancy by able-bodied military personnel need not be designed to be accessible, but accessibility is recommended since the intended use of the facility may change with time.

b. *Common areas.* Common areas such as walks, streets, parking and play areas, and entrances to multi-unit facilities will be designed and built to be accessible.

c. *Limited access areas.* Accessibility is not required to elevator pits, elevator penthouses, mechanical rooms, piping or equipment catwalks, lookout galleries, electrical and telephone closets, and general utility rooms.

## **2-9. Historic and archaeological facilities**

a. Historic preservation and disposal requirements are contained in AR 420-40. Technical guidance is provided in TM 5-801-1 and TM 5-801-2.

b. The DPW will ensure that projects which will disturb land are reviewed by state authorities.

c. Disposal of World War II temporary facilities constructed in the continental United States (CONUS) between 1939 and 1947 is permitted under the provisions of the Programmatic Memorandum of Agreement of 1986 among the Advisory Council on Historic Preservation, the National Conference of State Historic Preservation Officers, and the Department of Defense.

d. Requirements for historic and archeological facilities outside of the continental United States (OCONUS) are contained in final governing standards issued by the Department of Defense (DOD) Executive Agent.

## **2-10. Painting of buildings and structures**

a. *Lead-based paint (LBP).* LBP will not be applied to any Army facility. Refer to chapter 3 of this AR for management of facilities containing lead-contaminated paint.

b. *Inactive facilities.* Painting of inactive facilities will be according to established mobilization plans.

c. *Paint selection.* Type, quality, and color of paint will be selected according to IDG and Corps of Engineers Guide Specification-09900 (CEGS-09900).

d. *Exterior concrete, brick, and masonry.* Painting of exterior brick, concrete, and masonry surfaces is not recommended, except for weather proofing or as approved by the DPW.

### *e. Safety markings.*

(1) Type and color of safety markings will conform with NFPA Part 101, 29 CFR 1926, 29 CFR 1960, and EM 385-1-1.

(2) Marking of obstructions or potential hazards to air navigation

will be according to Federal Aviation Administration Advisory Circular 70/7460 or the standardization agreement appropriate to a foreign area.

(3) Safety markings for roads and railroads are described in TM 5-624 and TM 5-627.

*f. Painting procedures.* Procedures for surface preparation and paint application are described in TM 5-618 and CEGS-09900.

*g. Painting records.* Painting records will be maintained as described in TM 5-618, appendix B.

## **2-11. Maintenance of installed building equipment and equipment-in-place**

Maintenance and repair of IBE and EIP are the responsibilities of the DPW and the user, respectively. Provision of IBE as part of construction is explained in AR 415-15. AR 735-5 contains policy for equipment accountability.

## **2-12. Seismic safety of existing facilities**

The minimum performance objective for Army facilities is Substantial Life-Safety. To ensure compliance, seismic evaluations and mitigation of unacceptable seismic risks shall be performed. Higher levels of seismic protection for mission essential facilities will be considered in the evaluation.

*a. Seismic evaluation.* Guidance for the seismic evaluation of existing facilities is given in TM 5-809-10-2. Buildings will have a seismic evaluation performed when:

(1) A change in the building's use causes a change in the occupancy category, as defined in TM 5-809-10, to a category of greater importance (lower category number).

(2) A project is planned which causes the capacity of the structural system or components to be reduced to 90 percent or less of original stability and strength.

(3) A project will significantly extend the facility's useful life or will significantly increase the facility's value and the cost exceeds 50 percent of the current replacement value.

(4) A facility is damaged or is deemed to be an exceptionally high risk to occupants or to the public.

*b. Exceptions to seismic evaluations.* Existing facilities are exempt from seismic evaluation if:

(1) The original design was done according to the provisions of the 1982 or later edition of TM 5-809-10, or the 1988 or later edition of TM 5-809-1.

(2) Replacement is scheduled within 5 years.

(3) The facility is intended only for minimal human occupancy, and occupied by persons for a total of less than 2 hours a day.

(4) The facility is a one or two family dwelling, two stories or less, located in zone 1 or 2, as shown in TM 5-809-10.

(5) The gross area is less than 3000 square feet (275 square meters).

*c. Mitigation of unacceptable seismic risks.* If the seismic evaluation determines that the facility does not meet Substantial Life-Safety or higher performance standards, as appropriate, unacceptable seismic risks will be mitigated. Rehabilitation will be performed in accordance with TM 5-809-10.

*d. New facilities or additions or extension of existing facilities.* New facilities and additions or extension of existing facilities will be designed to provide the level of seismic protection required by TM 5-809-10 or TM 5-809-10-1.

## **2-13. Security of facilities**

For special provisions and references regarding the security of facilities and for protective design criteria, refer to AR 190-13, AR 195-5, and the AEI Manual.

## **2-14. Packing and crating**

The DPW is authorized to perform packing and crating of government equipment and supplies on a reimbursable basis.

# **Chapter 3 Hazardous Building Materials**

## **3-1. General**

This chapter establishes facility policy for management of hazardous building materials in a manner protective of human health and the environment. Environmental and medical and safety policy are contained in AR 200-1, AR 40-5, and AR 385-10.

## **3-2. Policy**

Commanders will—

*a.* Comply with Federal, state, and local requirements concerning LBP and asbestos activities. Such activities include surveys; hazard assessments and control; training; worker protection; solid waste disposal; laboratory accreditation; and sale, lease or demolition of facilities.

*b.* Establish installation hazard management teams consisting of representatives from DPW, medical, environmental, housing, safety, legal, and public affairs offices.

*c.* Ensure development and implementation of management plans to identify and control lead and asbestos hazards and exposures.

## **Section I**

### **Lead Hazard Management**

## **3-3. Scope**

*a.* The purpose of lead hazard management is to prevent lead exposure to children under the age of six years, pregnant women, and workers. Lead hazard management includes identification of lead hazards in child-occupied facilities by performance of risk assessments, control or elimination of lead hazards through interim control or abatement, and on-going monitoring of painted surfaces known or suspected to contain lead. Paint inspections to determine the presence and location of lead-based paint (LBP) will be performed only when required by Federal or state statute.

*b.* Where not otherwise specifically required by Federal, state, or local laws, the Army, recognizing that lead-based paint is not the only source of lead exposure, uses the more inclusive terms "lead-contaminated paint", "lead hazard management", and "lead hazard" instead of "lead-based paint", "lead-based paint management", and "lead-based paint hazard."

## **3-4. Requirements**

*a.* Families will receive specific information on the lead history of assigned family housing and general information on lead exposure prevention, as required by 24 Code of Federal Regulations (24 CFR), Subtitle A, Part 35, Subpart H, which implements Section 1018 of Title X (Public Law 102-550).

*b.* The Department of Housing and Urban Development (HUD) has developed guidelines for the evaluation and control of LBP hazards. These "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing" will be followed as a standard of care for assessment, management, and abatement of lead hazards. Guidelines may be ordered from the Director, Office of Lead Hazard Control, HUD, Room B-133, 451 Seventh Street SW, Washington, D.C. 20410.

*c.* Paint in pre-1978 child-occupied facilities is assumed to be lead-contaminated, unless testing determines otherwise. Risk assessments to identify lead hazards will be performed for facilities which contain lead-contaminated paint. Lead hazards will be managed by interim controls.

*d.* Lead-contaminated paint will be abated only when interim controls are ineffective or when economically justified for major repair or whole neighborhood revitalization projects. Such paint will not be removed solely for the purpose of abatement.

*e.* Lead-contaminated bare soil will be managed by interim controls unless economic, operational, or regulatory requirements dictate removal and disposal.

*f.* U.S. Army Corps of Engineers Guide Specification CEGS-02090 and Civil Works Guide Specification CECW-09940 will be

used in the preparation of lead abatement specifications for buildings and steel structures.

### **3-5. Disposition of Army facilities with lead-based paint**

a. 24 CFR Subtitle A, Part 35, Subpart E, provides guidance on elimination of LBP hazards in pre-1978 Army housing that is sold for residential habitation. This guidance will be superseded upon implementation of Section 1013, Disposition of Federally Owned Housing, of the Residential LBP Hazard Reduction Act of 1992 (Title X, Public Law 102-550.)

b. 24 CFR, Subtitle A, Part 35, Subpart H provides guidance on disclosure and other specific requirements to purchasers of Army housing constructed before 1978.

c. Building demolition debris will be characterized and disposed of in accordance with Federal, state, and local solid waste management requirements. (See AR 200-1.)

## **Section II**

### **Asbestos Hazard Management**

### **3-6. Scope**

The purpose of asbestos hazard management is to control the release of asbestos from friable and non-friable asbestos-containing material (ACM) and to minimize occupational and non-occupational exposure. Asbestos management includes surveys to identify the presence and location of ACM and implementation of control actions.

### **3-7. Requirements**

a. Asbestos is regulated as a hazardous air pollutant by 40 CFR Part 61, Subpart M, National Emission Standards for Hazardous Air Pollutants (NESHAP), which implements the Clean Air Act of 1970 (Public Law 91-604).

b. Facility surveys and surveillance monitoring will be conducted and documented to identify the existence, extent, and condition of ACM in accordance with the installation asbestos hazard management plan.

c. Identify, evaluate, and control ACM in schools on Army installations in accordance with the Asbestos Hazard Emergency Response Act (AHERA) of 1986 and 40 CFR Part 763. Surveys of school facilities which contain, or are suspected to contain, ACM will be conducted a minimum of every three years.

d. The installation asbestos hazard management plan will—

(1) Include provisions for training of workers, work practices, abatement alternatives, in-place management work practices, surveillance monitoring, state or local reporting requirements, and environmental response procedures.

(2) Include an environmental impact analysis per AR 200-2.

(3) Base abatement decisions on factors that include hazard assessments, initial and long-term costs, and projected utilization and useful life of facilities. ACM will not be abated solely for the purpose of removal.

e. U.S. Army Corps of Engineers Guide Specification CEGS-02080 will be used in the preparation of asbestos abatement specifications.

### **3-8. Disposition of Army facilities with asbestos-containing material**

a. Facilities with known or suspected ACM which does not pose a threat to human health at the time of transfer will be leased or sold in an "as is" condition.

b. ACM hazards in facilities to be leased or sold will be abated prior to property transfer unless:

(1) The facilities are scheduled for demolition by the transferee and the transfer document prohibits occupation of the building prior to demolition.

(2) The transferee assumes responsibility for the management of any ACM in accordance with applicable Federal, state, or local requirements.

c. Before lease or sale, all known information concerning ACM

and ACM hazards in the facility will be disclosed to the transferee. Special studies or tests to obtain this information are not required.

d. Prior to demolition of facilities, friable ACM or ACM which will become friable during demolition, will be removed and disposed of in accordance with the National Emission Standards for Hazardous Air Pollution (40 CFR 61, Subpart M) and other applicable Federal, state, and local requirements.

## **Chapter 4**

### **Roofing Systems Management**

#### **4-1. General**

This chapter establishes facility policy for inspection, maintenance, repair, and replacement of roofing systems.

#### **4-2. Policy**

The DPW will ensure the development and execution of an installation roofing system management plan in accordance with criteria of TM 5-617 or the ROOFER engineered management system. (This system is available at USACPW, Buildings and Structures Division, 7701 Telegraph Road, Alexandria, VA 22315-3862.)

#### **4-3. Inspection, maintenance, and repair**

a. Trusses, roof framing, roof covering, and associated structural components will be inspected by a qualified individual for structural adequacy and serviceability. (See TM 5-617.)

b. Roofing systems will be inspected every five years, except:

(1) Steep roofing systems will be inspected every seven years.

(2) Long span timber trusses, heavy timber framing, masonry unit pilasters or columns supporting structural frames will be inspected every two years.

(3) Timber framed buildings with high occupancy, such as theaters, chapels, gyms, and assembly halls, will be inspected annually.

(4) Roofing systems will be inspected after any storm or phenomena of nature that may have damaged the roofing system and after the installation of any roof mounted equipment.

(5) Membrane roofing systems (built-up and single-ply) will be inspected annually.

(6) Roofing systems under warranty will be re-inspected prior to the end of the warranty period.

c. Roofing projects will be reviewed for technical adequacy, compliance with U.S. Army Corps of Engineers and Federal guidelines, and warranty provisions.

d. Modifications to roofing systems will be approved in advance by a structural engineer.

#### **4-4. Roof replacement**

a. Design and documentation of roof replacement projects will include—

(1) Building classification and design life.

(2) Planned use of the building.

(3) Structural capability of the roof support system and deck.

(4) Economic assessment of alternative roofing systems.

(5) Past performance of the existing roofing system.

b. Areas of wet insulation will be removed and replaced. Wet insulation can be identified using a non-destructive moisture detection methods, including infrared (IR) thermography and nuclear or capacitance meters.

#### **4-5. Safety and access**

a. Personnel performing work on roofing systems will be protected according to Occupational Safety and Health Act (OSHA), 29 CFR 1926.

b. Roof areas will be accessible only to personnel performing inspection, maintenance, repair, or replacement of roofs or roof mounted equipment.

c. Mounting of equipment on roofing systems is discouraged.



d. Walkways will be provided to protect roofs from continuous traffic.

c. Ensure that custodial services contracts require the contractor to provide necessary supplies and equipment.

## **Chapter 5**

### **Preventive Maintenance and Self-Help**

#### **5-1. General**

This chapter establishes policy for:

a. *Preventive maintenance.* Preventive maintenance is the systematic care, servicing, and inspection of equipment, utility plants and systems, buildings and structures, and grounds facilities for the purpose of detecting and correcting incipient failures and accomplishing minor maintenance.

b. *Self-help.* Self-help is a voluntary program which uses military personnel and civilians to accomplish maintenance, repair, and minor construction to improve the livability and appearance of facilities.

#### **Section I**

##### **Preventive maintenance**

#### **5-2. Policy**

a. Organization of the DPW for management, control, and analysis of preventive maintenance is described in AR 420-10. Guidance on operating procedures, organization, and frequency of preventive maintenance services is contained in TM 5-600 series.

b. Trained plant and equipment operators and maintenance personnel (that is, boiler plants, cold storage plants, water and sewage plants, fire fighting equipment, mobile equipment, and utilities shop equipment) will accomplish preventive maintenance services.

c. An effective preventive maintenance program includes—

(1) Supervision and quality assurance.

(2) Training of operators and maintenance personnel in proper procedures, safety, and operation.

(3) Periodic inspection and servicing of plant systems and equipment.

#### **Section II**

##### **Self-help**

#### **5-3. Policy**

a. Work to be accomplished by self-help will be that which can be performed using Army training, materials, equipment, and supervision.

b. Self-help projects include minor maintenance (for example, painting a room), improvements (for example, landscaping and fencing), and troop sponsored projects (for example, renovation of barracks).

c. Controls will be established to ensure that personnel are technically qualified and that the work is approved and complies with the IDG.

## **Chapter 6**

### **Custodial Services**

#### **6-1. General**

This chapter establishes policy for custodial services.

#### **6-2. Policy**

Commanders will—

a. Provide custodial services necessary to promote safety, health, and livability and to enhance appearance of facilities. Refer to AR 215-1, AR 210-50, TM 5-608, and TM 5-609 for additional guidance.

b. Provide services in the most practical and economical manner, utilizing trained in-house or contract personnel in accordance with AR 5-20 and DA PAM 5-20.

## **Appendix A References**

### **Section I Required Publications**

**AR 5-20**  
Commercial Activities Program. (Cited in para 6-2b.)

**AR 210-50**  
Housing Management. (Cited in paras 2-2a, 2-3, 2-4, 2-5, and 6-2a.)

**AR 415-15**  
Army Military Construction Program Development and Execution. (Cited in paras 2-2a and 2-11.)

**AR 420-10**  
Management of Installation Directorates of Public Works. (Cited in paras 2-3 and 5-2a.)

**AR 420-18**  
Facilities Engineering Material/Equipment and Relocatable Buildings Management. (Cited in para 2-2a.)

**DA Pamphlet 420-11**  
Facilities Engineering Management Handbook. (Cited in para 2-3.)

**TM 5-608**  
Contracting for Custodial Services Other Than Medical and Industrial Facilities. (Cited in para 6-2a.)

**TM 5-609**  
Military Custodial Services Manual. (Cited in paras 6-2a.)

**TM 5-617**  
Maintenance and Repair of Roofs. (Cited in paras 4-2 and 4-3a.)

**MIL-HDBD-1035**  
Family Housing. (Cited in para 2-5.)

**Section II  
Related Publications**

**DOD Instruction 4165.65**  
Shelter for the Homeless Program

**AR 40-5**  
Preventive Medicine

**AR 190-13**  
The Army Physical Security Program

**AR 190-47**  
The Army Correction Systems, Military Police

**AR 195-5**  
Evidence Procedures

**AR 200-1**  
Environmental Protection and Enhancement

**AR 200-2**  
Environmental Effects of Army Actions

**AR 210-13**  
General/Flag Officer's Quarters and Installation Commander's Quarters Management

**AR 215-1**  
Administration of Army Morale, Welfare, and Recreational Activities and Nonappropriated Fund Instrumentalities

**AR 385-10**  
Army Safety Program

**AR 405-10**  
Acquisition of Real Property and Interests Therein

**AR 405-70**  
Utilization of Real Estate

**AR 405-80**  
Granting Use of Real Estate

**AR 405-90**  
Disposal of Real Estate

**AR 415-19**  
Nonappropriated-Funded Construction Project Development and Approval

**AR 415-28**  
Department of the Army Real Property Category Codes

**AR 420-40**  
Historic Preservation

**AR 735-5**  
Policies and Procedures for Property Accountability

**DA Pamphlet 5-20**  
Commercial Activities Study Guide

**TM 5-618**  
Paints and Protective Coatings

**TM 5-620**  
Facilities Engineering Maintenance and Caulk/Glaze Repairs of Architectural and Structural Elements of Buildings and Structures

**TM 5-624**  
Maintenance and Repair of Surfaced Areas

**TM 5-627**  
Maintenance of Trackage

**TM 5-801-2**  
Historic Preservation: Maintenance Procedures

**TM 5-805-4**  
Noise and Vibration Control

**TM 5-805-9**  
Power Plant Acoustics

**TM 5-807-10**  
Signage

**TM 5-809-10**  
Seismic Design for Buildings

**TM 5-809-10-1**  
Seismic Design Guidelines for Essential Buildings

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**EM 383-1-1**  
Corps of Engineers Construction Safety Manual

**Section III**  
**Prescribed Forms**

This section contains no entries.

**Section IV**  
**Referenced Forms**

This section contains no entries.

## Glossary

### Section I

#### Abbreviations

##### ACM

Asbestos containing material

##### ACSIM

Assistant Chief of Staff for Installation Management

##### ADA

Americans With Disabilities Act

##### ADAAG

Americans With Disabilities Act Accessibility Guidelines

##### AEI

Architectural and engineering instructions

##### AHERA

Asbestos Hazard Emergency Response Act

##### ARNG

Army National Guard

##### ASA(IL&E)

Assistant Secretary of the Army (Installations, Logistics and Environment)

##### BOQ

Bachelor officers quarters

##### CEGS

Corps of Engineers Guide Specification

##### CFR

Code of Federal Regulations

##### DEH

Directorate of Engineering and Housing

##### DOD

Department of Defense

##### DODI

Department of Defense Instruction

##### DPW

Directorate of Public Works

##### EIP

Equipment-in-place

##### FEMA

Federal Emergency Management Agency

##### HQDA

Headquarters, Department of the Army

##### HUD

Housing and Urban Development

##### IBE

Installed building equipment

##### IDG

Installation Design Guide

##### IR

Infrared

##### LBP

Lead-based paint

##### MACOM(s)

Major Army command(s)

##### MILCON

Military construction

##### MWR

Morale, welfare, and recreational

##### NAF

Nonappropriated funds

##### NFPA

National Fire Protection Association

##### NESHAP

National Emission Standard for Hazardous Air Pollutants for Asbestos

##### OCONUS

Outside of the continental United States

##### OSHA

Occupational Safety and Health Act

##### RPMA

Real property maintenance activity

##### SEBQ

Senior enlisted bachelor quarters

##### UFAS

Uniform Federal Accessibility Standards

##### UPH

Unaccompanied personnel housing

##### USACE

U.S. Army Corps of Engineers

##### USAR

U.S. Army Reserve

##### USC

United States Code

### Section II

#### Terms

##### Army installation

An aggregation of contiguous or near contiguous, common mission supporting real property holdings under the jurisdiction of the DOD or a State, the District of Columbia, territory, commonwealth, or possession, controlled by and at which an Army unit or activity (active, U.S. Army Reserve (USAR), or the Army National Guard (ARNG)) is permanently assigned.

##### Building

A facility with occupiable space, usually with flooring, covered by a roof, enclosed by walls, and sited on a tract of land. Maintenance, storage, production, administration,

health care, family housing, and unaccompanied personnel housing are examples of buildings.

##### Carpet

A heavy woven fabric used as a floor covering, either in one piece, squares, or many pieces bound together; it covers either an entire floor surface or a portion thereof, and it is affixed in some manner. Carpet is defined as a floor finish when installed as a prime floor finish as a part of a repair or construction project, and as such, is classified as real property.

##### Child-occupied facilities

Child occupied facilities are buildings, or portions of buildings, constructed prior to 1978, visited regularly by the same child, six years of age or under, on at least two different days within any week, provided that each day's visit lasts at least three hours and the combined weekly visit lasts at least six hours and the combined annual visits last at least 60 hours. Child-occupied facilities may include, but are not limited to, day-care centers, pre-schools, kindergarten classrooms, and family child care homes.

##### Custodial services

Custodial services include the organizing, supervising, and training of the total work force engaged in the performance of cleaning and janitorial services at the installation, and includes maintenance of equipment and obtaining necessary supplies and equipment. Custodial services include the performance of work such as sweeping, mopping, scrubbing, stripping, waxing, and finishing of floors; spray buffing, spray cleaning, spot and stain removing, and buffing of floors; cleaning rugs and shampooing of carpets; washing windows, and skylights; cleaning insect screens; dusting and washing walls, ceilings, doors and woodwork; dusting and cleaning of light fixtures, heating and air conditioning grills radiators, exposed pipes, and fans and ducts in finished spaces; dusting, cleaning, and servicing of washrooms, toilet rooms, plumbing fixtures, and similar equipment; cleaning stairways, entrances, and entrance mats and walk-off matting; sweeping and snow removal of entrances and walks adjacent to the buildings; and trash removal. Excluded are maid and housekeeping services, bed making, and collection and distribution of linen.

##### Equipment-in-place

Personal property consisting of capital equipment and other equipment of a moveable nature which is affixed to real property. Such equipment can be removed without reducing the usefulness of the facility.

##### Facility

Any interest in land, structure, or complex of structures together with any supporting road and utility improvements necessary to support the functions of an Army activity or mission. A facility includes the occupiable

space it contains. The class of facility is identified by a five digit construction category code. (Refer to AR 415-28.)

#### **Installation Design Guide (IDG)**

A document prepared by an installation that provides specific guidance on the exterior and interior design parameters for the installation. All installation RPMA improvements, renovation projects, and new construction must comply with the IDG. It may be as simple or as comprehensive as desired to achieve aesthetically pleasing working and living environments.

#### **Installed building equipment**

Installed building equipment (IBE) includes items of real property affixed to or built into a facility and which become an integral part of the facility.

#### **Lead-based paint (LBP)**

(1) Paint in liquid form: LBP is any paint that contains more than 0.06% lead by weight (calculated as lead metal) in the total nonvolatile content of the liquid paint.

(2) Paint applied to a surface (in situ): Any paint which tests equal to or greater than 1.0 milligram/cm<sup>2</sup> when using the x-ray fluorescence analyzer or 0.5% by weight when using atomic absorption spectroscopic analysis.

#### **Lead-contaminated paint**

Paint that contains any detectable amount of lead.

#### **Lead hazard**

Any condition that causes exposure to lead from lead-contaminated dust, lead-contaminated soil, or lead-contaminated paint that is deteriorated or present on accessible surfaces, friction surfaces, or impact surfaces that would result in adverse human health effects. Lead hazards identified through risk assessments are referred to by HUD and EPA as lead-based paint hazards.

#### **Permanent buildings and structures**

Facilities designed and constructed with finishes, materials, and systems selected for energy efficiency, low maintenance, and low life cycle cost and with a life expectancy of 25 years or more.

#### **Preventive maintenance**

Preventive maintenance is the systematic care, servicing, and inspection of equipment, utility plants and systems, buildings and structures, and the grounds facilities for the purpose of detecting and correcting incipient failures and accomplishing minor maintenance.

#### **Real Property Master Plan**

The installation commander's plan for management and development of the installation's real property resources. It analyzes and integrates the plans prepared by the installation and other garrison and tenant activities,

higher headquarters, and neighboring communities to provide for orderly development of real property resources. A complete real property master plan is the foundation for the development of peacetime facility management and construction development activities on the installation.

#### **Self-help**

Self-help is a voluntary program which uses military personnel and civilians to accomplish maintenance, repair, and minor construction to improve the livability and appearance of facilities.

#### **Semi-permanent buildings and structures**

Facilities designed and constructed with finishes, materials, and systems selected for moderate energy efficiency, maintenance, and life cycle cost and with a life expectancy of more than five years but less than 25 years.

#### **Structure**

A facility other than a building, such as bridges, locks and dams, fences, flagpoles, swimming pools, open towers, tent frames and floors, permanent grandstands and bleachers, historical monuments, free standing walls, and underground storage facilities.

#### **Substantial Life-Safety**

Performance objectives where the earthquake may cause significant building damage that may not be repairable, though it is not expected to significantly jeopardize life from structural collapse, falling hazards, or blocked routes of entrance or egress. Compliance with Federal Emergency Management Agency (FEMA) standard 178 is assumed to achieve this level of performance.

#### **Temporary buildings and structures**

Facilities designed and constructed on an expedient basis, with finishes, materials, and systems selected with energy efficiency, maintenance, and life cycle costs factors being secondary considerations and with a life expectancy of five years or less.

### **Section III**

#### **Special Abbreviations and Terms**

This section contains no entries.

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